

reached on the execution of the particular operation represented by the hand posture sign or compound sign, the execution is started, for instance by clicking an activate-button or -key. It should be noticed that the users need not be present in the same real workspace such as a meeting room or a conference hall. In fact they may be spread over different rooms, buildings or even countries.

In FIG. 2 is shown an example of a data processing system according to the invention to be used for interaction between the user and the system. The data processing system 10 now comprises a display 16 as a feedback means towards the user, and, in addition to the above-mentioned conventional data input devices (not shown), image posture code selector means for selecting predetermined operations based on a hand posture code, stored in memory 20. Upon inputting a selected hand posture sign into the system 10 an operation associated therewith is performed by a data processing device 22 on data shown on the display 16. For instance, a designing task may be performed using hand posture code operations such as: reduce the dimensions of a selected image representing an object, magnify the image, increase the horizontal distance between two selected objects, delete a particular feature. This could be accomplished for example by first inputting a hand pointing operation, indicating a displayed entity on which a next operation is to be performed, whereupon the intended operation is selected in conformity with the hand posture code available.

In FIGS. 3A-3H schematic examples of schematized hand posture image codes representing operations are outlined.

In FIG. 3A a sign is depicted that may be used for expressing the operation <open file>, whereas its counterpart <close file> is shown in FIG. 3B. The same pair of signs could be used for taking hold of a particular shown object (FIG. 3B) for transport across the displayed field until it is let loose (FIG. 3A), thereby accomplishing a displacement.

The signs of FIGS. 3C and 3D may be used for the operations <increase a selected (or all) linear dimension(s)> and <decrease a selected (or all) linear dimension(s)>, respectively. FIG. 3E shows the sign for indicating a particular item displayed and may be used for selection after such indication. FIG. 3F represents the sign that may be used for deleting or removing a particular displayed feature by disposing or waving it over that particular feature. Another application thereof may be the indication of interrupting a sequence of operation steps, giving the impression of a <stop>-sign. The sign according to FIG. 3G may be used for indicating an intended change of distance between two displayed objects along a predetermined dimension. The sign of FIG. 3H can be used for indicating a window for drawing attention to what is shown in the window, for instance, in order to set bounds to the number of objects to be operated upon.

In this way, depending on the context, hand image postures and sequences thereof may be used as an artificial equivalent of a natural gesture language for expressing in a compact format information to be understood by the users or to be processed by the system.

The hand posture signs may be displayed as being stationary or as giving the impression of motions as in actual gesture language. For instance, the sign indicated by FIG. 3C may be shown as having the index and thumb locations switching between respective positions

wherein the tips of the index and the thumb are spaced well apart. Alternatively, the colour of grey-tone may switch periodically.

With respect to the postures of FIG. 3C, 3D and 3G the linear dimension relating to the respective operations indicated may be chosen by providing the selection means with keys or buttons each selecting one of several orientations possible, or with a knob for rotating the image of the displayed hand image posture, thereby selecting the particular dimension.

As has been mentioned hereinabove, hand images may be combined for expressing compound meanings. For instance, selection or indication of a particular shown object (FIG. 3E) and thereupon waving a flat hand (FIG. 3F) over or nearby the object expresses the intention of removing the object or, when activated, removes the object. Another compound meaning is for instance the use of the window-sign of FIG. 3H for focussing attention on a limited part of the virtual work space, for example a group of objects, followed by the sign of FIG. 3G, wherein the flat hands are brought closer together, indicating the operation of making the group more compact or of a uniform reduction of size.

FIG. 4 is a schematic diagram of a multi-button mouse device for use with a data processing system according to the invention. The mouse 40 includes a case 42 the form of which is adapted to the hand of the user. The position of the buttons 44, 46, 48, 50, 54 and 56 is chosen such as to offer an ergonomically justified manipulation of the mouse 40. The location of button 46 gives rise to, in some degree, a closed hand, corresponding to a sign as the one of FIG. 3B. The location of button 48 can be used for pointing or selecting an indicated item on the display, thereby positioning the user's hand according to the position of the hand image of FIG. 3E. The buttons 50 and 52 force the user's hand to adopt postures, that reflect those of FIG. 3C and 3D, respectively, and therefore are suitable for activating operations that may be associated with these postures. Button 54 may be used in the same ergonomic manner to activate an <open file>-command or a <let loose the indicated object>-command as figures by the sign of FIG. 3A. Button 56 drawn by way of a dotted line may be used for selecting the <interrupt>-operation of the <delete>-command.

We claim:

1. A data processing system which establishes a common virtual workplace for a plurality of individual workstations at respective locations, said system comprising said plurality of workstations, each workstation comprising:

display means for producing an image field signifying to a user of said workstation data processing operations being performed on information items in said image field; and

control means by which the user can select particular data processing operations to be performed on information items in said image field, said control means controlling said display means to produce in said image field one or more images of a human hand at positions and in a posture or sequence of postures selected from a hand position code such that the displayed hand images represent the selected particular data processing operations;

said system further comprising coupling matrix means for interconnecting the individual workstations so that the same information items are produced in the displayed image fields of all workstations, and the hand